

Ethnobotany, systematic study of the botanical knowledge of a social group and its use of locally available plants in foods, medicines, clothing, or religious rituals. Rudimentary drugs derived from plants used in folk medicines have been found to be beneficial in the treatment of many illnesses, both physical and mental. The ethnobotany of prehistoric cultures is discovered through examination of ancient writings, pictures, pottery, and plant remains in jars or midden heaps (garbage dumps) excavated at archaeological sites. From this information, the agricultural practices and cultural development of a people can be determined. Ethnobotanists often live for periods of time in the society they are studying, to observe all phases of their lives, including mythology, religious practices, and language, in order to determine the specific plants used and the methods involved in their preparation. Travelers' journals, the field notes of early botanists, and other writings serve as sources of information about agricultural methods and folk remedies of the past.

Methods:

Ethnobotany is an integrative, multi-disciplinary field of learning. So the tools of ethnobotanical investigations are many: botany, mycology (the study of fungi), taxonomy (ways of categorizing), anthropology, ethnography, archaeology, comparative folklore, religious studies, medicine, chemistry, pharmacology (uses and effects of chemicals in plants), and more. Some of the psychoactive species and their lore carry us deep into realms of ritual, mythology and cosmology. Sometimes, in ethnobotanical inquiry, we call upon ancient history, or colonial socio-economic histories, or even examine the roots of our modern social movements.

Field ethnobotany is the observation of the human-plant relationship in places where it is visible and may be either experienced and/or documented, in stories and images.

These are a few of the many branches of investigation that draw on cultural knowledge, and that begin with the prefix ethno:

Ethnobiology is the study of the relationships between people, the lifeforms surrounding them, and the environment in which they live, in the past or present. Ethnobotany is included within the greater category of ethnobiology.

Ethnomycology is the study of folk knowledge of mushrooms and other fungi.

Ethnomycology is often subsumed under ethnobotany, as mushrooms were long believed to be plants, which they are not.

Ethnoscience is the study of the various ways the world is perceived and categorized in different cultures. Ethnoscience regards the operational concepts in an indigenous knowledge system, and is sometimes called folk science. Folk classification and naming systems are also called folk taxonomy.

Ethnomedicine is the study of traditional medicines, whether written (as in Ayurveda or Traditional Chinese Medicine), or remembered and transmitted via oral tradition (such as in much Native American, Latin American or African folk medicine, or in Euro-American herbal medicine). Medical anthropology studies contemporary ethnomedicine, which includes concepts of what illness is and how healing occurs.

Ethnopharmacology is the study of the uses, effects and modes of actions of naturally-occurring drug compounds. This is a key field that often explains the effectiveness of herbal medicine, stimulants, analgesics, inebriants or psychoactive species. Both ethnomedicine and ethnopharmacology overlap significantly with ethnobotany.

Ethnomusicology is the study of the music of different cultures, and musical instruments they make and use, which are often made of plant materials. Ethnomusicology may include the study of dance.

Ethnoecology refers to a paradigm that is gaining ground in the early 21st century: Understanding and documenting how peoples perceive and manage the ecosystems they inhabit.

Though ethnobotany provides several approaches in plant researches, here only the resources which help in medicinal are plant-research mentioned.

Archaeological resources

India has a rich treasure of archaeological sculptures of antiquity, which can be of great value in tracing the plants which were used during early civilization.

Sithole (1976) described about 40 such plants from bas reliefs on the gateways of the Great Stupa at Sanchi and the railing of Bharhut stupa, belonging to the first and second century B.C., respectively.

Literature resources

Our ancient literature can also be tapped for information on medicinal plants. No authentic record of any kind except a few archaeological sculptures of Mohenjo-Daro is available from the prevedic period in this country. But, Rigveda and Atharvaveda, which date back to 2000 to 1000 B.C. which are our oldest Vedic literature resources, contain valuable

information regarding medicinal plants of that period.

Sharma (1968-69) enlisted 248 botanical drugs which are mentioned mainly in Atharvaveda and Rigveda. Singh and Chuneekar (1972) published a glossary of such medicinal plants, which have been mentioned in Charak Samhita, Sushurta Samhita and Ashtanga Hridiyam.

Perhaps the outstanding example, at least in modern times of the use of the literature is the huge compilation of all anti-tumour plants, cited in old texts and local folk medicine from all over the world for screening purpose at Cancer Chemotherapy National Service Center (CCNSC) (Hartwell, 1967-71).

Recently, checklists of Ayurvedic and Yunani treatises have been published (Anonymous 1962 and Tripathi et al, 1978). A list of some of the important Indian treatises is presented in Table 3.

Indian treatises Authors Dates No. of medicinal plants included.

Herbarium Resources

Herbarium sheets and field notes have also proved to be a good source of ethnobotanical data. The most outstanding example of this type of research is of Dr. Altschul, who searched about 2.5 million plant specimens in Harvard University Herbarium and from these 5,178 useful notes of drugs and food value were recorded (Altschul, 1973).

Field Resources

The plants have become the never ending source for new biodynamic compounds of potential therapeutic value. Ethnobotanist brings out from the field the suggestion as to which raw plant material may be tapped and for this, he gets clues from the tribals.

Atkinson (1882) published 12 volumes of the Gazetteer of North West Provinces of India, three of which are concerned with the Kumaon and Garhwal Himalayan Region. Recently, the Central Councils for Research in Ayurveda, Siddha and Yunani conducted several medicobotanical surveys in some important ethnic and tribal regions of the country.

It was found that the Nicobaris use the resinous wood of *Canarium* and *Dipterocarpus* spp. for repelling mosquitoes and as a torch.

In the Nilgiris, the decoction of *Bambusa arundinacea* is used as an abortifacient

(Ragunathan, 1976).

Comparative study of the Ethnobotanical Resources

Ethnobotany becomes a more important and interesting subject when its study reaches a point when the results are studied comparatively. For example, *Ficus religiosa* and *Ficus racemosa* are among the most important sacred as well as medicinal plants of antiquity.

In Atharvaveda, *Ficus racemosa* is attributed the property of increasing the number of domestic cattle, giving virility and strength of its wearer, add to the fertility of his land and growth of the fruits.

In Charak Samhita there are about 23 references of *Ficus religiosa* corresponding to medicinal and other properties. A few therapeutic uses described there are : in fever, in rheumatism, in urinary troubles, in spermatorrhoea, in pile and in dysentery (Vidyalankar, 1959).

Schultes (1963) rightly stated, "Our challenge is to salvage some of the modern medico-botanical lore before it becomes for ever entombed with the cultures that give it birth".

Kirtikar and Basu (1935) stated, "The only way to illumine the whole field of native therapeutics is to survey it in small tracts and sift the value of those drugs peculiar to each province... There is wide feeling that there is beneficence in the scheme of nature which provides in every country, suitable remedies on the spot for the ill to which humanity is locally most prone. Very little has been done so far to incorporate in the practice of physicians in the country the medicines which in India nature scatters broadcast from her lap".

Plants in folk medicine of the Himalaya

The Himalayan ranges are inhabited by a large tribal population, often with their distinct way of life, traditions, dialects and cultural heritage. The Himalaya have bestowed them with vast, varied and even endemic plants. The tribals have learnt to utilize local herbs for different ailments after centuries of trials, often at the risk of loss of human life. Many tribal beliefs forbid them to unravel the virtues of the plants to outside world. But, it is also true that till recent little concerted effort had been made to document this knowledge by detailed ethnobotanical surveys.

Some folkore medicines of the region have proved efficaceous after detailed pharmacological and clinical trials. *Rauvolfia serpentina* roots are a classical example.

Coptis teeta is another plant which has given encouraging results. The oil of seed kernel of Hydnocarpus kurzii, from upper Assam and Tripura hills, has proved useful in the treatment of leprosy and skin diseases. The roots of Nardostachys grandiflore have provided a safe sedative.

Use of plants in folk medicine by tribals of Central India.

Use of plants in folk medicine is very prevalent in Central India (Jain, 1963, Jain and Tarafder, 1963). More than one hundred plants were reported to be commonly used in medicine in the district of Bastar (Jain, 1965). Some plants are used singly, whereas others are used in mixture. Similarly, certain plants were considered useful in only one disease whereas several had multiple uses.

Many medicinal uses reported by tribals of Bastar appeared to be unknown or little-known outside their community. Examples of a few such plants are given below:

Cassia tora (Charota) : Tender leaves eaten to prevent skin diseases.

Combretum decandrum

(Ainti) : Oil from seeds applied on eczema.

Flacourtia indica

(Kakai) : Bark applied on eczema.

Nyctanthes arbortristis

(Harsingar) : The inflorescence and young fruits pounded in water; this is used for relieving cough.

Polygonum plebejum

(Chatibhaji) : The plant eaten as a vegetable to promote lactation.

An Ethno-Medico-Botanical survey of Ambikapur District, M.P. – Ethno-Medico-botanical surveys of tribal area of Ambikapur distt. M.P. were conducted during 1990 and 1991 and folk-lore information on forty medicinal plants was recorded with the help of Corwa, Oraon

and Pando tribes. The Tribals are living in Asad, Dindo, Kusmi, Mainpat, Janakpur, Sonhat and Rampur forests of Ambikapur district. Some noteworthy plant species which are used in the treatment of various diseases are *Boerhavia diffusa* (Elephantiasis), *Hemidesmus indicus* (Stomach ulcer), *Indigofera cassioides* (Antifertility agent), *Leea macrophylla* (Chest pain).

Paleoethnobotany:

Paleoethnobotany (sometimes spelled palaeoethnobotany), or archaeobotany, is the study of past human-plant interactions through the recovery and analysis of ancient plant remains. Both terms are synonymous, though Paleoethnobotany (from the Greek words palaios [παλαιός] meaning ancient, ethnos [ἔθνος] meaning race or ethnicity, and votano [βότανο] meaning plants) is generally used in North America and acknowledges the contribution that ethnographic studies have made towards our current understanding of ancient plant exploitation practices, while the term archaeobotany (from the Greek words archaios [αρχαίος] meaning ancient and votano) is preferred in Europe and emphasizes the discipline's role within archaeology.

As a field of study, Paleoethnobotany is a subfield of environmental archaeology. It involves the investigation of both ancient environments and human activities related to those environments, as well as an understanding of how the two co-evolved. Plant remains recovered from ancient sediments within the landscape or at archaeological sites serve as the primary evidence for various research avenues within paleoethnobotany, such as the origins of plant domestication, the development of agriculture, paleoenvironmental reconstructions, subsistence strategies, paleodiets, economic structures, and more.[3]

Paleoethnobotanical studies are divided into two categories: those concerning the Old World (Eurasia and Africa) and those that pertain to the New World (the Americas). While this division has an inherent geographical distinction to it, it also reflects the differences in the flora of the two separate areas. For example, maize only occurs in the New World, while olives only occur in the Old World. Within this broad division, paleoethnobotanists tend to further focus their studies on specific regions, such as the Near East or the Mediterranean, since regional differences in the types of recovered plant remains also exist.

Ethnomedicine

Ethnomedicine is a study or comparison of the traditional medicine based on bioactive compounds in plants and animals and practiced by various ethnic groups, especially those with little access to western medicines, e.g., indigenous peoples. Often these traditions

constitute significant interactions with insects as well, in Africa or around the globe. The word ethnomedicine is sometimes used as a synonym for traditional medicine.

Ethnomedical research is interdisciplinary; in its study of traditional medicines, it applies the methods of ethnobotany and medical anthropology. Often, the medicine traditions it studies are preserved only by oral tradition. Often these traditions constitute significant interactions with insects as well

Scientific ethnomedical studies constitute either anthropological research or drug discovery research. Anthropological studies examine the cultural perception and context of a traditional medicine.

Ethnoecology

Ethnoecology is the scientific study of how different groups of people living in different locations understand the ecosystems around them, and their relationships with surrounding environments.

It seeks valid, reliable understanding of how we as humans have interacted with the environment and how these intricate relationships have been sustained over time.

The "ethno" (see ethnology) prefix in ethnoecology indicates a localized study of a people, and in conjunction with ecology, signifies people's understanding and experience of environments around them. Ecology is the study of the interactions between living organisms and their environment; ethnoecology applies a human focused approach to this subject. The development of the field lies in applying indigenous knowledge of botany and placing it in a global context.

Ethnic communities of India

India is a unique country with great diversity in ethnicities, race, religion, language, culture, cuisine and in every other aspect of the human society. Indian civilization is one of the oldest in the world and primarily consists of the Indo-Aryans of North India and the Dravidians of South India, the latter being the original inhabitants of the country, with links to the people of the Indus Valley Civilization while the former migrated to the country at about 1800 BCE. As India has such a diverse cultural demographic, it makes sense that the country is also incredibly linguistically diverse.

Indo-Aryans

The Indo-Aryan people are part of the various Indo-European ethnolinguistic groups who speak one of the many Indo-Aryan languages. It is estimated that the Indo-Aryans first migrated to the

Indian Subcontinent of South Asia around 1800 BCE. Indo-Aryans make up the majority of the Indian population and are mostly located in north and central India.

The Indo-Aryans are the most diverse group of people in India, being made up of Assamese, Bengali, Gujarati, Hindi, Kashmiri, Konkani, Marathi and Punjabi. The Indo-Aryans dominated all of India, outside of South India where most Indians are of Dravidian origin. Many of India's great dynasties and empires came from the Indo-Aryan peoples of India, like the Maurya Empire (322-185 BC), the Gupta Empire (320-558), the Karkota Empire (625-885), the Pala Empire (700-1100), the Maratha Empire (1674-1818), and the Mughal Empire (1526-1857), just to name the major ones. Each of the Indo-Aryan ethnic groups has their own language or languages.

Dravidians

The Dravidian people are any native speakers of the Dravidian languages in the Indian Subcontinent of South Asia. Almost all the Dravidians of India live in the south of India. The five major ethnic groups of Dravidian people in India are Kannadiga, Malayali, Tulu, Tamil, and Telugu.

The ancient Indus Valley civilization in India was believed to have been of Dravidian origin in northern India, but then the Dravidian people were pushed south when the Indo-Aryans came in and the Kuru Kingdom in northern India arose. Later south India was dominated by the three Dravidian kingdoms of the Cheras, Cholas, and the Pandyas. These three kingdoms have been shown to sponsor the growth of literature, music, the arts and to have done extensive trading. The three kingdoms also supported and were tolerant of Buddhism, Jainism, and Hinduism, which is part of the reason why the Dravidian people have a diverse religious following. The Chera kingdom fell to the Rashtrakuta Dynasty over time, and then eventually the Vijayanagara Empire dominated all of south India. Eventually, after a few centuries in power, the Vijayanagara Empire collapsed in 1646 due to rebellions and pressure from the Muslim north. South India then split up into smaller states that were then slowly taken over by colonists from Europe. The major languages spoken by the Dravidian people are Brahui, Kannada, Malayalam, Tamil, and Telugu.

Mongoloid And Other Minority Groups

The Brachycephalic peoples were the first to arrive in India, having traveled all the way from Africa. In modern mainland India, only small groups of the Brachycephalic peoples, like the Irulas, Kodars, Paniyans, and Kurumbas, live in small areas in southern India in hill tribes. They are mostly found in the Indian territories of the Andaman and Nicobar Islands. The next group of people to arrive in India were the Austriacs, who were the group that paved the way for the modern foundation for Indian civilization. They were the first in India to have cultivated vegetables and rice, as well as made sugar. There are very few Austriacs found in India now, but

their languages still live on in Eastern and Central India. The Mongoloids are found in the various states in the northeastern part of India, as well as in the northern areas in the states of Ladakh, parts of West Bengal, and Sikkim. The last minority group in India are the Western Brachycephals who mostly live in the western part of India in areas like Kashmir, Gujarat, Tamil Nadu and Maharashtra.

➤ *Treatments for jaundice*

Ayurvedic treatments for jaundice begin with a purgation therapy. This helps to remove the toxins accumulated in the liver and the rest of the body. But, strong purgatives are avoided.

The normal drugs chosen for treatment of jaundice in Ayurveda are Nisoth and Kutki. Their roots are administered to the patient in a powder form. The two herbs can be taken, either together or individually, depending on the seriousness of the jaundice and the strength of the patient.

Avipattikara choorna and Arogya Vardhini vati are the normally prescribed medicines for jaundice. These medicines have to be taken in dosages of teaspoonful quantities twice a day with water or with honey.

Ayurvedic Treatment for Jaundice by Herbs

1. Berberis (Berberis vulgaris):

This is a very effective herb for all kinds of liver ailments, especially jaundice. This herb is so effective that it has been nicknamed 'jaundice berry'. It is a bitter tonic which must be given to a jaundice patient several times a day. The dose is one fourth of a teaspoon.

2. Chicory (Chichorium intybus):

The chicory plant is extremely useful in the treatment of liver ailments. The flowers, seeds, and roots are very commonly used for the treatment of all types of liver ailments. The Chicory juice can help in the treatment of sluggishness of the liver, obstruction of the flow of bile, and the enlargement of the spleen - all of which are factors that are associated with jaundice. Chicory can also help promote the healthy secretion of the bile.

3. Gokulakanta (Hygrophila spinosa):

The root of the gokulakanta plant is extremely useful for the treatment of liver diseases such as jaundice and hepatitis. An infusion of the root of the herb in water is prepared and is given to the patient twice or thrice each day.

4. Indian Aloe (Aloe barbadensis):

Indian aloe is another excellent remedy for treating liver problems, especially jaundice. The pulp of the leaf should be taken with black salt and ginger every morning for a period of ten days. This can effectively cure jaundice.

5. Indian Sorrel (Oxalis corniculata):

This herb is also useful in the treatment of jaundice. The herb should be taken with buttermilk prepared from cow's milk.

6. Picrorrhiza (Picrorrhiza kurroa):

It is one of the best known Ayurvedic remedies for jaundice. This herb is known as Kutki in Ayurveda. The powder of this herb should be mixed with hot water and taken twice a day.

7. Snake Gourd (Trichosanthes anguina):

An infusion of Snake Gourd should be taken along with coriander for the treatment of jaundice.

8. Turpeth (Operculina turpethum):

Turpeth is another good Ayurvedic remedy for the treatment of jaundice. The powder of this herb should be mixed in hot water and taken twice a day.

➤ *Infertility :*

Infertility itself does not stand alone. It is the result of some other disease. So the herbs used in the treatment are directed towards eradicating the underlying cause. The most commonly known and used herbs such as Ashwagandha (*Withania somnifera*), Shatavari (*Asparagus racemosus*), Amalaki (*Embllica officinalis*) are extremely useful formulations which help create the synergistic hormonal balance between the Follicle Stimulating Hormone (FSH) and the Luteinizing Hormone (LH).

No individual herb alone is considered useful for promoting fertility. Therefore, a combination of herbs is used in the treatment of infertility with the purpose of correcting an organic or functional problem that causes infertility.

Ayurvedic herbs used in the treatment for infertility:

Ovulation disorder - Ashoka, Dashmoola, Shatavari, Aloe vera, Guggulu etc.

Premature ovarian failure (POF) - Ashoka, Dashmoola, Shatavari, Guduchi, Jeevanti etc.

Blocked fallopian tubes, adhesions (scar tissue) and pelvic inflammatory disease - Guduchi, Punarnava etc.

The right combination of herbs helps in regulating menstrual cycles, enhancing general health and wellness, revitalizing sperm (enhancing a man's sperm count, morphology and motility), reducing stress, enhancing sleep, controlling anxiety and increasing energy level, balancing the endocrine system and improving blood flow in pelvic cavity, thereby promoting fertility.

➤ *Diabetes:*

Ginseng

Although there are several different types of ginseng, the most promising studies on ginseng and diabetes have used American ginseng (*Panax quinquefolius*). A meta-analysis has shown that American ginseng may significantly improve blood sugar control and fasting glucose (a marker of your general blood sugar levels) by increasing your body's insulin sensitivity.³ Look for capsules with a standardized extract of ginsenosides, the active ingredient.

Chromium

Chromium is an essential trace mineral that plays an important role in carbohydrate and fat metabolism and helps body cells properly respond to insulin. In fact, one study found that the incidence of diabetes was lower in people who took a supplement containing chromium within the previous month.

There are several promising studies suggesting chromium supplementation may be effective, but they are far from conclusive. A recent review study looked at 20 different randomized controlled trials on chromium and found that supplementing did decrease fasting plasma glucose levels in five of the 20 studies, while hemoglobin A1C decreased by 0.5% in five of 14 studies.

Generally, the benefits can be significant, but widespread effectiveness of using chromium in diabetes care is fairly limited.

Magnesium

Magnesium is a mineral found naturally in foods such as green leafy vegetables, nuts, seeds, and whole grains and in nutritional supplements. Magnesium is needed for more than 300 different biochemical reactions. It helps regulate blood sugar levels and is needed for normal muscle and nerve function, heart rhythm, immune function, blood pressure, and bone health.

On the other hand, one study suggests that low magnesium levels may worsen blood glucose control in type 2 diabetes. The same study shows evidence that magnesium supplementation may help with insulin resistance by increasing insulin sensitivity.

It can interact with certain medications, such as those used for osteoporosis, high blood pressure (calcium channel blockers), as well as some antibiotics, muscle relaxants, and diuretics.

Cinnamon

Cinnamon has been found to have glucose-lowering ability while also reducing lipid biomarkers including triglycerides, low-density lipoprotein cholesterol, and total cholesterol.

A recent triple-blind, placebo-controlled, randomized clinical trial looked at cinnamon supplementation in 140 people with type 2 diabetes over three months. In the study, participants were divided into groups and either given two capsules per day of 500 milligrams of cinnamon powder each or a placebo.

After three months, the statistically significant findings included improvements in body mass index (BMI), visceral fat, body fat, along with improvements in fasting plasma glucose, A1C, insulin production, insulin resistance, and lipids, as compared to the placebo group.⁸ The greatest effects were noticed in those with a BMI over 27 (technically considered overweight).

Aloe Vera

Although aloe vera gel is better known as a home remedy for minor burns and other skin conditions, one review suggests that aloe vera gel may help people with diabetes, thanks to a number of active phytosterol compounds from the plant that have been found to reduce blood glucose and hemoglobin A1C levels by enhancing glucose storage and utilization.

Gymnema

Studies suggest that the herb Gymnema (*Gymnema sylvestre*) can lower blood sugar levels in people with type 2 diabetes.¹⁰ Amazingly, Gymnema can actually make sweet foods taste less sweet, so you end up wanting to eat less of them. The herb is well-known for its ability to reduce fat accumulation and help with weight loss, thanks to its enzyme-inhibiting properties.

Additionally, one such study found that thanks to Gymnema's potent antioxidant activity, it may help prevent organ damage often seen in diabetes, as the disease is marked by

increased production of reactive oxygen species (ROS), caused by long-term elevation of blood sugar.

Because Gymnema may significantly lower blood sugar levels, people taking medications for diabetes or using insulin shouldn't take Gymnema simultaneously unless they are closely monitored by a healthcare provider.

➤ **Blood pressure:**

Herbal remedies include a lot of procedures that can help you in lowering the blood pressure. Adding certain herbs to your diet can help in decreasing the level of your hypertension. Here are the ten herbs that can work efficiently for your high blood pressure

1. Cinnamon

Cinnamon in your daily diet can help in lowering blood pressure. Studies show that no matter how long you are suffering from high blood pressure, it is highly beneficial in treating High Blood Pressure.

2. Cardamom

It is a popular herb used for seasoning, mostly in the South Asian cuisine. If you consume the cardamom powder two times a day, continuously for 12 weeks, then you will see good results yourself.

3. Basil

Basil is a powerful herb for treating high blood pressure. It has got great taste, and it is famous for garnishing. It has a chemical substance called eugenol, that can lower the amount of blood flow through the vessels.

4. Flaxseed

Flaxseed is rich in omega-3 fatty acids, and it is highly beneficial. You can add flax seeds in your regular meals and control your blood pressure.

5. Ginger

Ginger is very beneficial for the proper circulation of blood and relaxation of muscles. It helps in regulating blood flow throughout the body.

6. Garlic

The nitric oxide present in garlic can help in providing relaxation to the blood vessels. The blood tends to move freely throughout the body.

7. Celery seed

Celery seeds play the role of a diuretic and can help lower the blood pressure. You can have them in your soups for a great flavor.

8. Hawthorn

Hawthorn is one of the famous Chinese remedies to treat high blood pressure.

9. Cat's Claw

It is a part of the Chinese herbal remedy and can treat hypertension along with neurological problems.

10. French Lavender

It has a beautiful scent and can help in lowering the heart rate, which indeed produces a decline in high blood pressure.